Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____
I declare this is my own work.

GCSE
GEOGRAPHY

Paper 1 Living with the Physical Environment

Monday 22 May 2023 Afternoon Time allowed: 1 hour 30 minutes

Materials
For this paper you must have:
- the OS map key insert (enclosed)
- a pencil
- a rubber
- a ruler.

You may use a calculator.

Instructions
- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.

Answer all questions in Section A and Section B.

Answer two questions in Section C.
Question 3 (Coasts), Question 4 (Rivers), Question 5 (Glacial)

For Examiner's Use	
Question	Mark
1	
2	
3	
4	
5	
TOTAL	

- You must answer the questions in the spaces provided. Do **not** write outside the box around each page or on blank pages.
- If you need additional extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The total number of marks available for this paper is 88.
- Spelling, punctuation, grammar and specialist terminology will be assessed in Question **01.11**.

Do not write outside the box

For the multiple-choice questions, shade the circle next to the correct answer.

CORRECT METHOD ⬬ WRONG METHODS ⊗ ⦿ ≋ ✓

If you want to change your answer you must cross out your original answer as shown. ⬬

If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown. ⬬

Section A The challenge of natural hazards

Answer **all** questions in this section.

Question 1 The challenge of natural hazards

0 1 . 1 Which **one** of the following is a natural factor affecting climate change?

Shade **one** circle only.

[1 mark]

A Agriculture ⬭

B Burning fossil fuels ⬭

C Deforestation ⬭

D Volcanic activity ⬭

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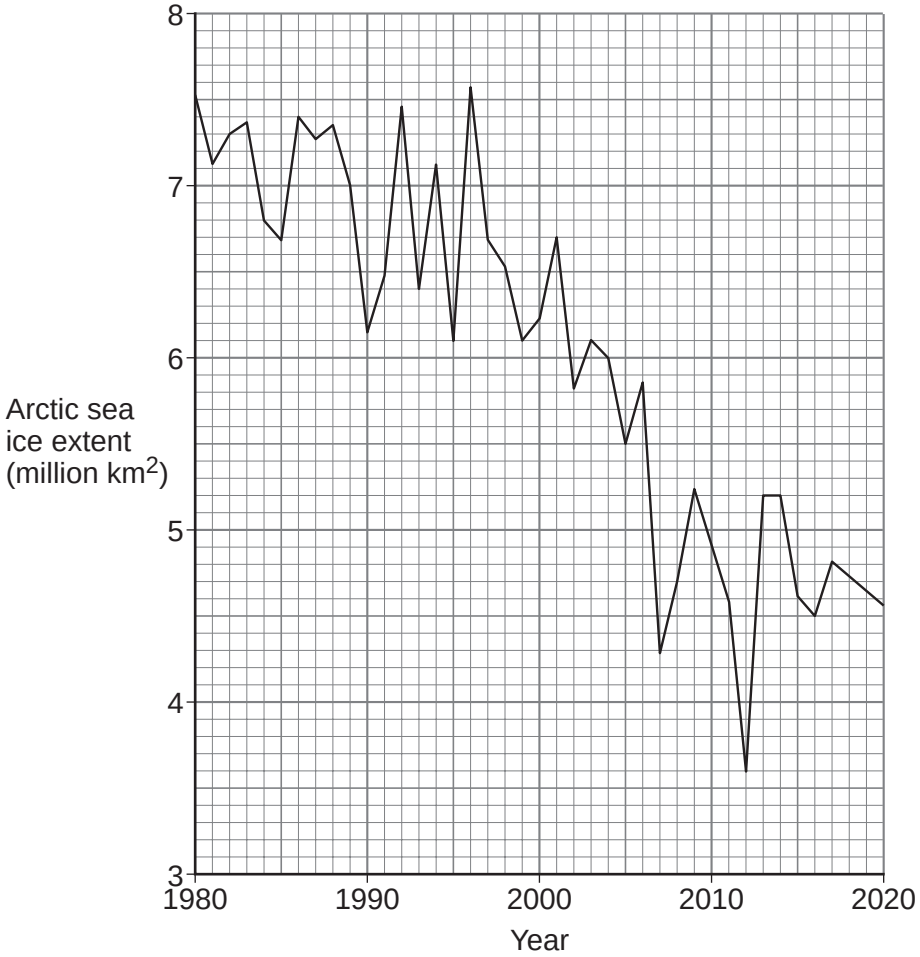
Study **Figure 1**, a graph showing average monthly Arctic sea ice extent in September between 1980 and 2020.

Figure 1



0 1 . 2 Using **Figure 1**, which **one** of the following statements is true?

Shade **one** circle only.

[1 mark]

A The sea ice extent in 1980 and 2000 was the same. ⬭

B The sea ice reached its smallest extent in 2012. ⬭

C The sea ice decreased every year between 1980 and 1996. ⬭

D The sea ice increased from 2000 to 2020. ⬭

0 1 . 3 Using **Figure 1**, by how much did the extent of sea ice change between 1980 and 2016?

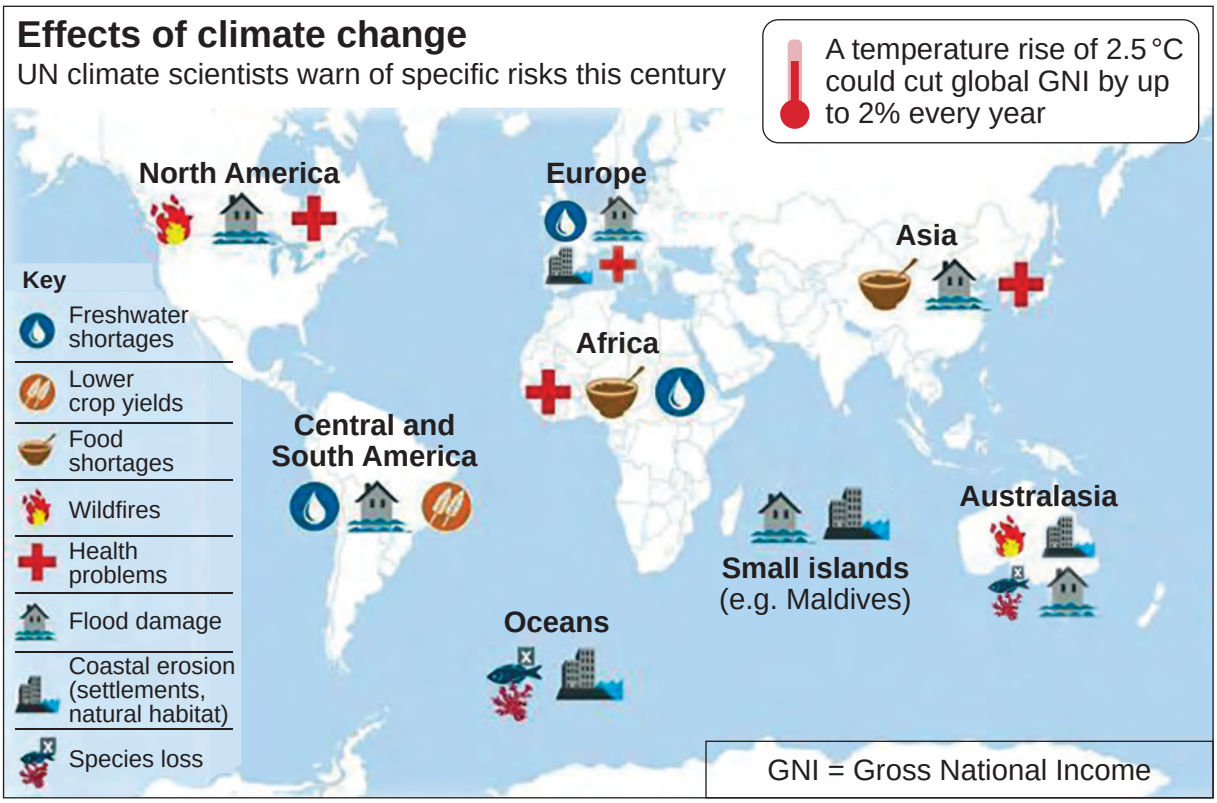
[1 mark]

_____ million km^2

Do not write outside the box

Study **Figure 2**, a world map showing some possible effects of climate change.

Figure 2



0 1 . 4 Suggest how climate change may have effects on people.

Use **Figure 2** and your own understanding.

[4 marks]

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Question 1 continues on the next page

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ANSWER IN THE SPACES PROVIDED

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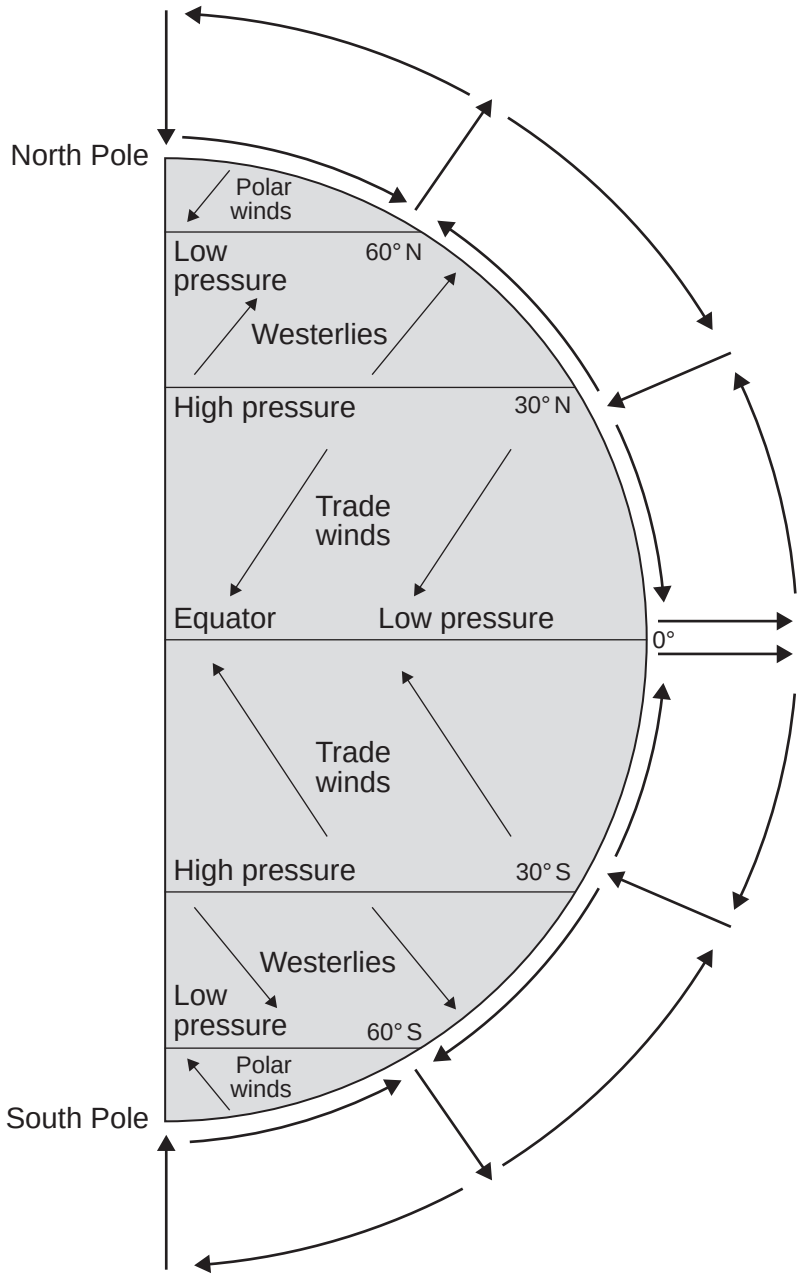
Study **Figure 3**, a diagram showing the global atmospheric circulation.

Figure 3



0 1 . 5 Using **Figure 3**, complete the following paragraph.

[3 marks]

Air from the Equator rises and moves towards the poles, then cools down and sinks at approximately _____ north and south of the Equator.

The sinking air creates an area of _____ pressure with very little rainfall. Some of the air moves back to the Equator as surface winds called _____ .

Turn over ▶

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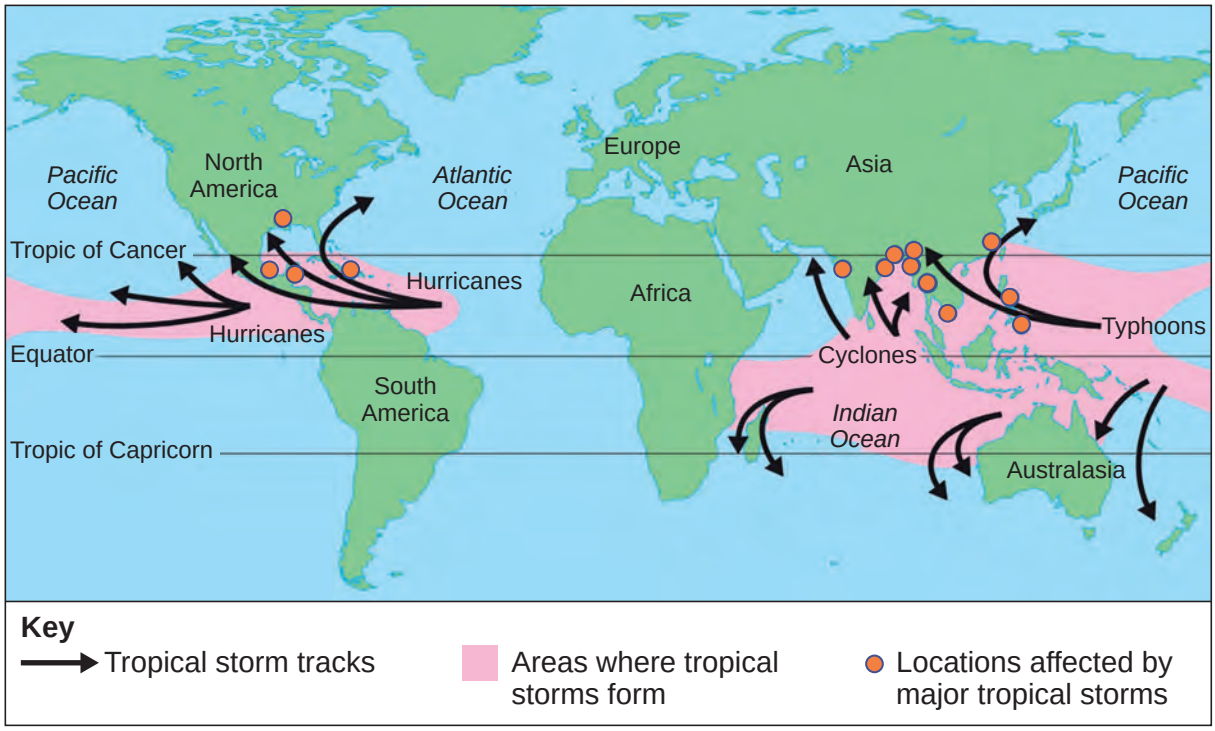
Study **Figure 4**, information about the tracks of tropical storms and the locations affected by major tropical storms.

Figure 4



Year	Areas affected	Name of storm	Number of deaths
1970	Bangladesh	Great Bola	300 000
1975	China	Nina	171 000
1991	Bangladesh	Gorky	138 866
2008	Myanmar	Nargis	138 366
1985	Bangladesh	Urir	15 000
1977	India	Devi Taluk	14 200
1998	Central America	Mitch	11 400
2013	Philippines	Haiyan	6 200
1991	Philippines	Uring	5 960
2007	Bangladesh	Sidr	4 234
1997	Vietnam	Linda	3 859
2004	USA, Caribbean	Jeanne	2 782
2005	USA	Katrina	1 833
2005	Central America	Stan	1 629

Do not write outside the box

0 1 . 6 Using **Figure 4**, which statement describes where tropical storms form?

Shade **one** circle only.

[1 mark]

A Between the Tropics ⬭

B In the centre of large land masses ⬭

C South of the Tropic of Capricorn ⬭

D Along the west coasts of Europe and Africa ⬭

0 1 . 7 Using **Figure 4**, name the tropical storm which caused the greatest number of deaths after the year 2000.

[1 mark]

_____

0 1 . 8 Calculate the median number of deaths caused by the tropical storms listed in **Figure 4**.

[1 mark]

_____

0 1 . 9 Outline **one** reason why the number of deaths caused by tropical storms varies.

[2 marks]

_____

_____

_____

_____

Question 1 continues on the next page

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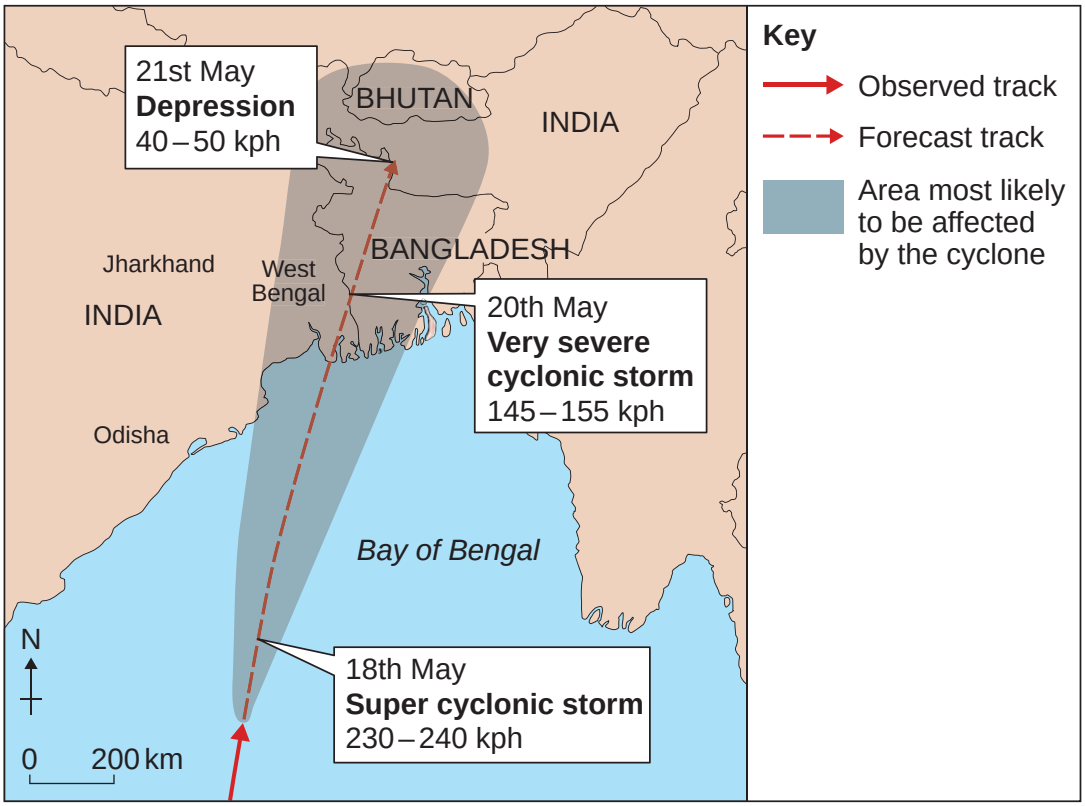
Study **Figure 5**, a photograph of a cyclone shelter in Bangladesh and a map showing the predicted track of Cyclone Amphan in May 2020.

Figure 5



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0 1 . 1 0 To what extent can protection and prediction strategies reduce the effects of tropical storms?

Use **Figure 5** and your own understanding.

[6 marks]

Extra space

Question 1 continues on the next page

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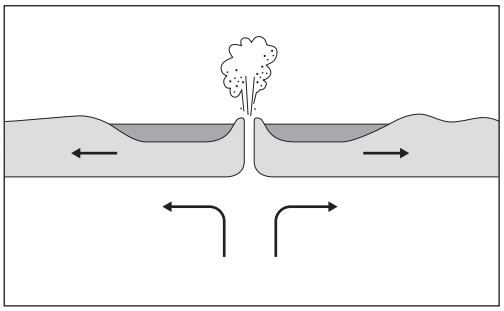
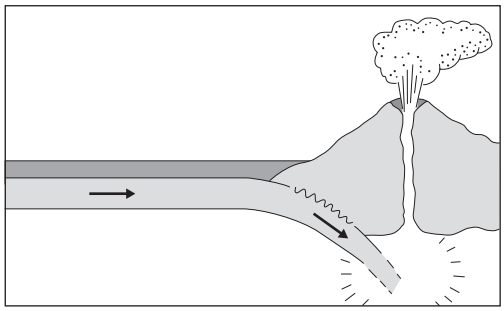
Study **Figure 6**, diagrams of different types of plate margin.

Figure 6

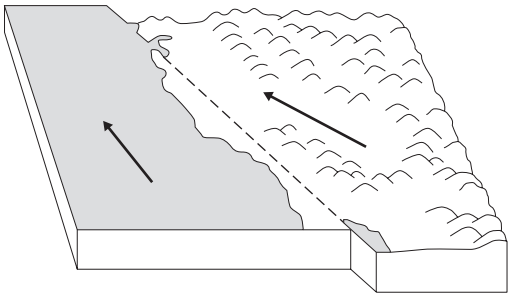
Constructive margin



Destructive margin



Conservative margin



0 1 . 1 1 Suggest how the processes taking place at different types of plate margin can lead to earthquakes and volcanic activity.

Use **Figure 6** and your own understanding.

[9 marks]
[+ 3 SPaG marks]

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Extra space

33

End of Section A

Turn over for Section B

Do not write outside the box

Section B The living world

Answer **all** questions in this section.

Question 2 The living world

Study **Figure 7**, a diagram of a food web.

Figure 7

The image is not reproduced here due to third party copyright restrictions

0 2 . 1 Using **Figure 7**, identify a producer.

[1 mark]

_____

0 2 . 2 What is the difference between a food chain and a food web?

[1 mark]

_____

_____

0 2 . 3 Using **Figure 7**, state **one** effect on the food web if disease killed most of the trout.

[1 mark]

_____

_____

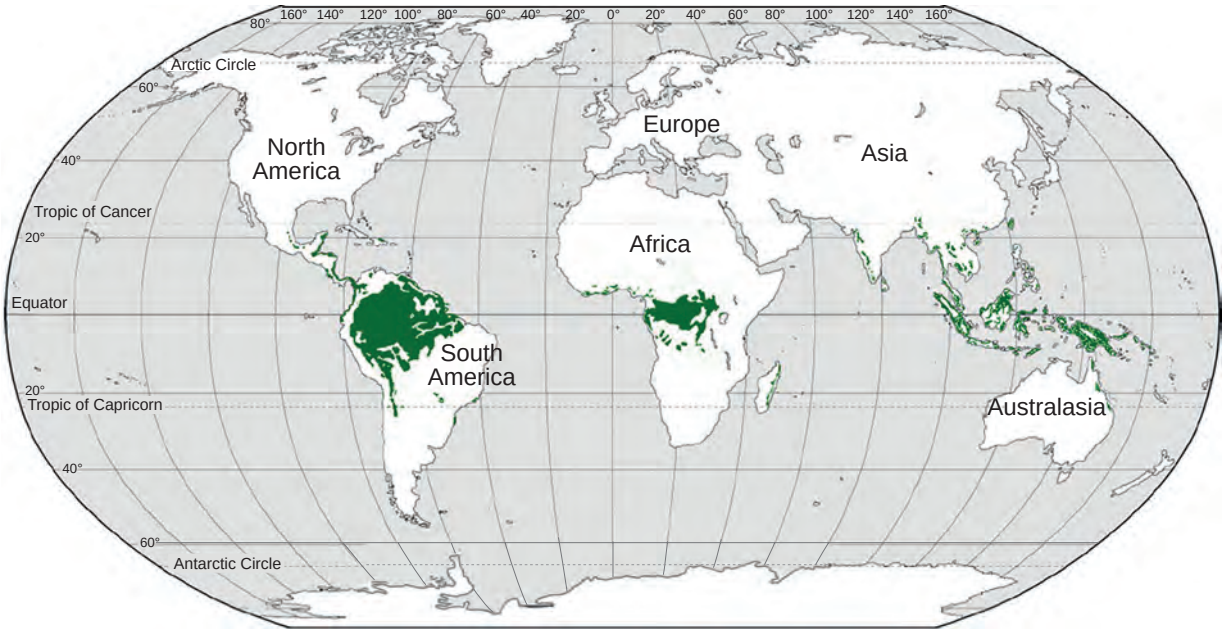
Do not write outside the box

0 2 . 4 For a small-scale ecosystem that you have studied, outline the link between producers and consumers.

[2 marks]

Study **Figure 8**, a world map showing the location of tropical rainforests.

Figure 8



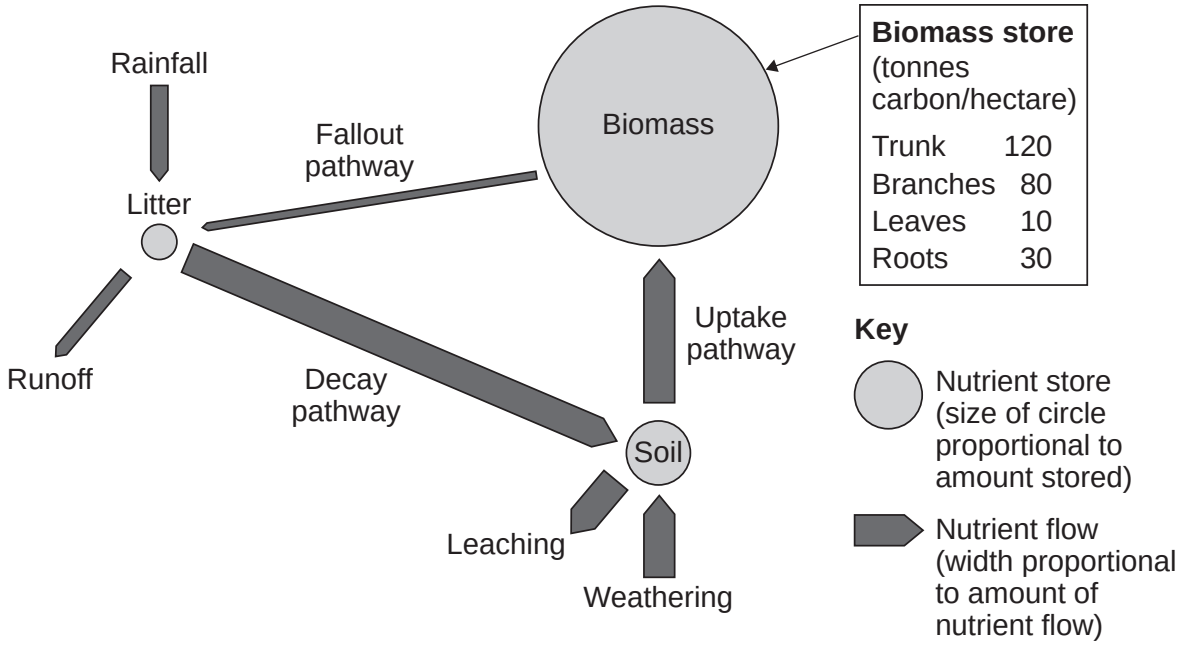
0 2 . 5 Using **Figure 8**, describe the distribution of tropical rainforests.

[2 marks]

Do not write outside the box

Study **Figure 9**, a diagram showing flows and stores in the nutrient cycle of a tropical rainforest.

Figure 9



0 2 . 6 Using **Figure 9**, what percentage of the biomass is stored in the roots?

Shade **one** circle only.

[1 mark]

A 7.5% ⬭

B 12.5% ⬭

C 17.5% ⬭

D 22.5% ⬭

0 2 . 7 Outline **one** reason why nutrient cycling is very rapid in tropical rainforests.

[1 mark]

_____

_____

Do not write outside the box

0 2 . 8 Suggest **one** example of a human activity that might interfere with the nutrient cycle shown in **Figure 9**.

[1 mark]

_____

_____

Question 2 continues on the next page

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Study **Figure 10**, a Fact file about deforestation in the tropical rainforests.

Figure 10

Tropical rainforests are home to more than 50% of the plant and animal species on Earth.

Deforestation from 2001 to 2019 released 105 gigatonnes of carbon dioxide into the atmosphere.

Cattle ranching accounts for 80% of current deforestation in Brazil.

Indonesia's forests are being cleared to create oil palm plantations.

Bauxite, iron ore, manganese, gold and diamonds are mined in tropical forests.

Removal of forest increases the risk of flooding and soil erosion.

0 2 . 9 'Tropical rainforest deforestation has major economic and environmental impacts.'

Do you agree?

Use **Figure 10** and your own understanding to explain your answer.

[6 marks]

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Extra space

Question 2 continues on the next page

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0 2 . 1 0 Extreme environments provide opportunities for economic development. These opportunities include energy, farming, fishing, mining and tourism.

Choose **either** a hot desert environment **or** a cold environment.

Discuss the opportunities for economic development in your chosen environment.

Use a case study and your own understanding.

[9 marks]

Chosen environment _____

Extra space _____

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25

End of Section B

Turn over for Section C

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Section C Physical landscapes in the UK

Answer **two** questions from the following:

Question 3 (Coasts), Question 4 (Rivers), Question 5 (Glacial).

Question 3 Coastal landscapes in the UK

0 3 . 1 Which **one** of the following is a process of erosion in coastal areas?

Shade **one** circle only.

[1 mark]

A Hydraulic power ⬭

B Longshore drift ⬭

C Rock fall ⬭

D Slumping ⬭

0 3 . 2 Give **one** type of weathering that takes place in coastal areas.

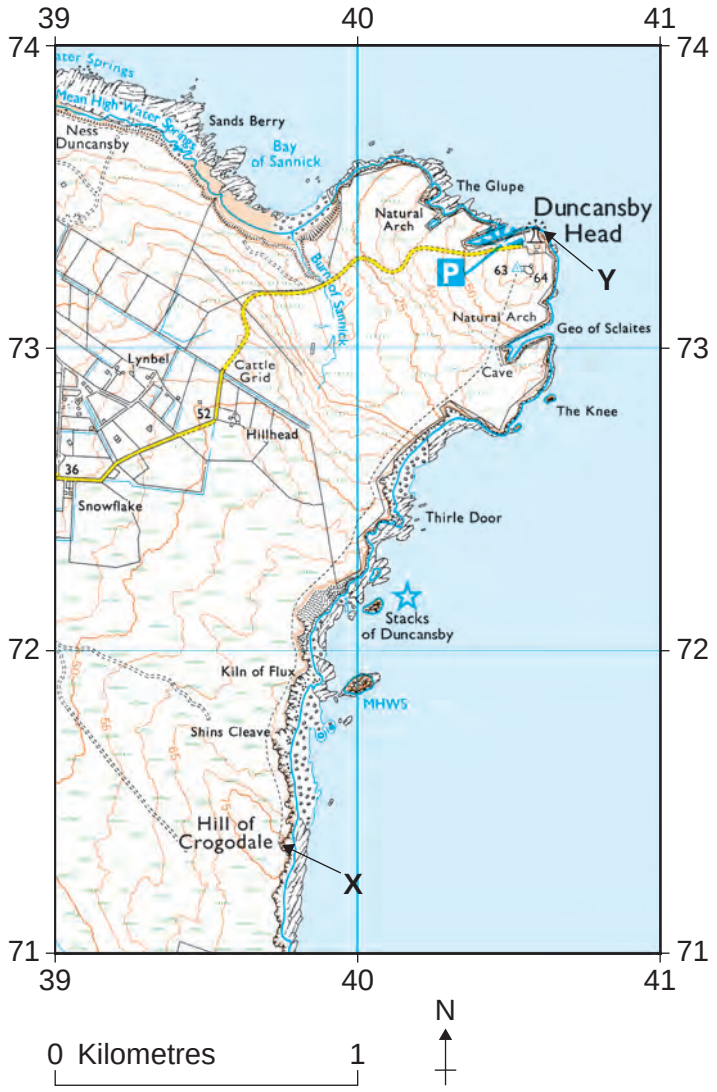
[1 mark]

_____

Do not write outside the box

Study **Figure 11**, a 1:25 000 Ordnance Survey map showing part of northern Scotland.

Figure 11



0 3 . 3 Using **Figure 11**, what is the straight-line distance between Hill of Crogodale, marked **X**, and Duncansby Head, marked **Y**?

Shade **one** circle only.

[1 mark]

A 2.25 km ⬭

B 2.75 km ⬭

C 3.25 km ⬭

D 3.75 km ⬭

Turn over ▶

Do not write outside the box

Study **Figure 12**, a photograph looking northwards along the coastline towards Duncansby Head.

Figure 12

0 3 . 4 Using **Figure 11** and **Figure 12**, describe **two** pieces of evidence that show that this coastline is being eroded.

[2 marks]

1 _____

_____

2 _____

_____

Do not write outside the box

0 3 . 5 Explain how spits and bars form along the coast as a result of deposition.

[4 marks]

Extra space

Question 3 continues on the next page

Do not write outside the box

Study **Figure 13**, a photograph of coastal defences in Withernsea in eastern England.

Figure 13

0 3 . 6 Discuss the costs and benefits of hard engineering strategies for coastal management.

Use **Figure 13** and your own understanding.

[6 marks]

Do not write outside the box

Extra space

15

End of Question 3

Do not write outside the box

Question 4 **River landscapes in the UK**

0 4 . 1 Which word describes the process of erosion when stones collide with each other as they move downstream?

Shade **one** circle only.

[1 mark]

A Abrasion ⬭

B Attrition ⬭

C Hydraulic action ⬭

D Solution ⬭

0 4 . 2 Give **one** way rivers transport material.

[1 mark]

_____

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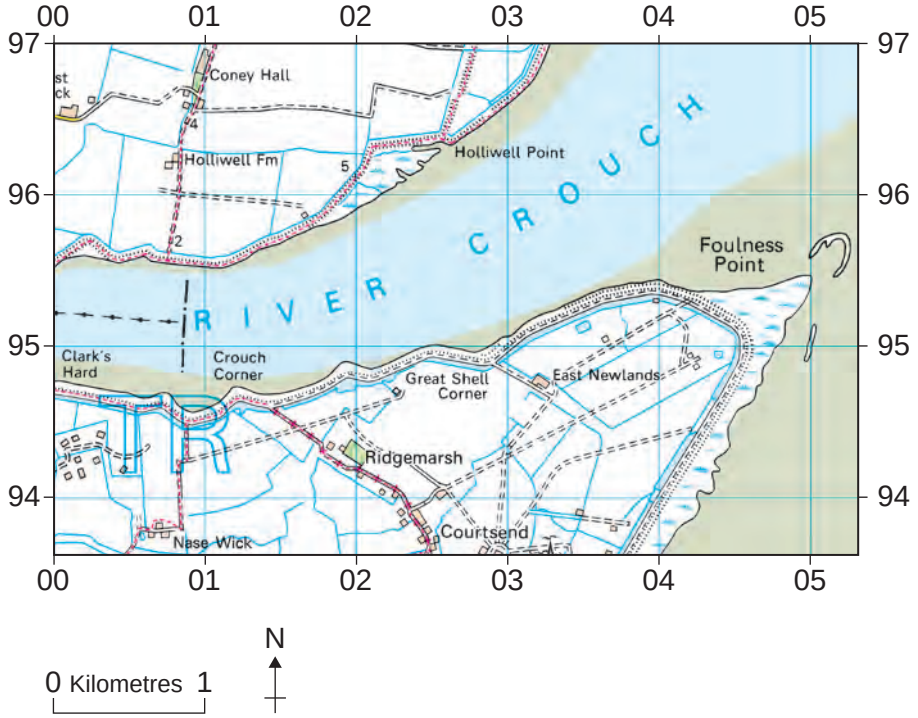
Study **Figure 14**, a 1:50 000 Ordnance Survey map extract showing the River Crouch estuary in Essex.

Figure 14



0 4 . 3 Using **Figure 14**, what is the approximate area of grid square 0495 covered by salt marsh?

Shade **one** circle only.

[1 mark]

A 0.2 km^2

B 0.4 km^2

C 0.6 km^2

D 0.8 km^2

Question 4 continues on the next page

Do not write outside the box

Study **Figure 15**, a photograph of the Crouch estuary in Essex.

Figure 15

0 4 . 4 Using **Figure 14** and **Figure 15**, describe **two** characteristics of an estuary.

[2 marks]

1 _____

_____

2 _____

_____

Do not write outside the box

0 4 . 5 Explain how physical factors can affect flood risk.

[4 marks]

Extra space

Question 4 continues on the next page

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Study **Figure 16**, an extract from a website that gives details of a flood management scheme on the River Thames.

Figure 16

The River Thames between Datchet and Teddington has the largest area of undefended developed floodplain in England.

The estimated economic impact of a major flood in the area is currently around £1 billion. Due to the impact of climate change, damage could be twice as great by 2055.

The Environment Agency is planning to build a new flood channel along this part of the River Thames.

This scheme will bring many benefits, including protection from flooding for 15 000 homes and 2400 businesses, improved biodiversity for wildlife through the creation of 250 hectares of new habitat and opportunities for recreational activities including walking, cycling, boating and angling.

0 4 . 6 Discuss the issues which can arise from flood management schemes.

Use **Figure 16** and your own understanding.

[6 marks]

Do not write outside the box

Extra space

15

End of Question 4

Do not write outside the box

Question 5 **Glacial landscapes in the UK**

0 5 . 1 What is the name given to a large boulder transported and deposited by glaciers in areas with a different rock type?

Shade **one** circle only.

[1 mark]

A Erratic ⬭

B Moraine ⬭

C Outwash ⬭

D Till ⬭

0 5 . 2 Give **one** way glaciers move material.

[1 mark]

_____

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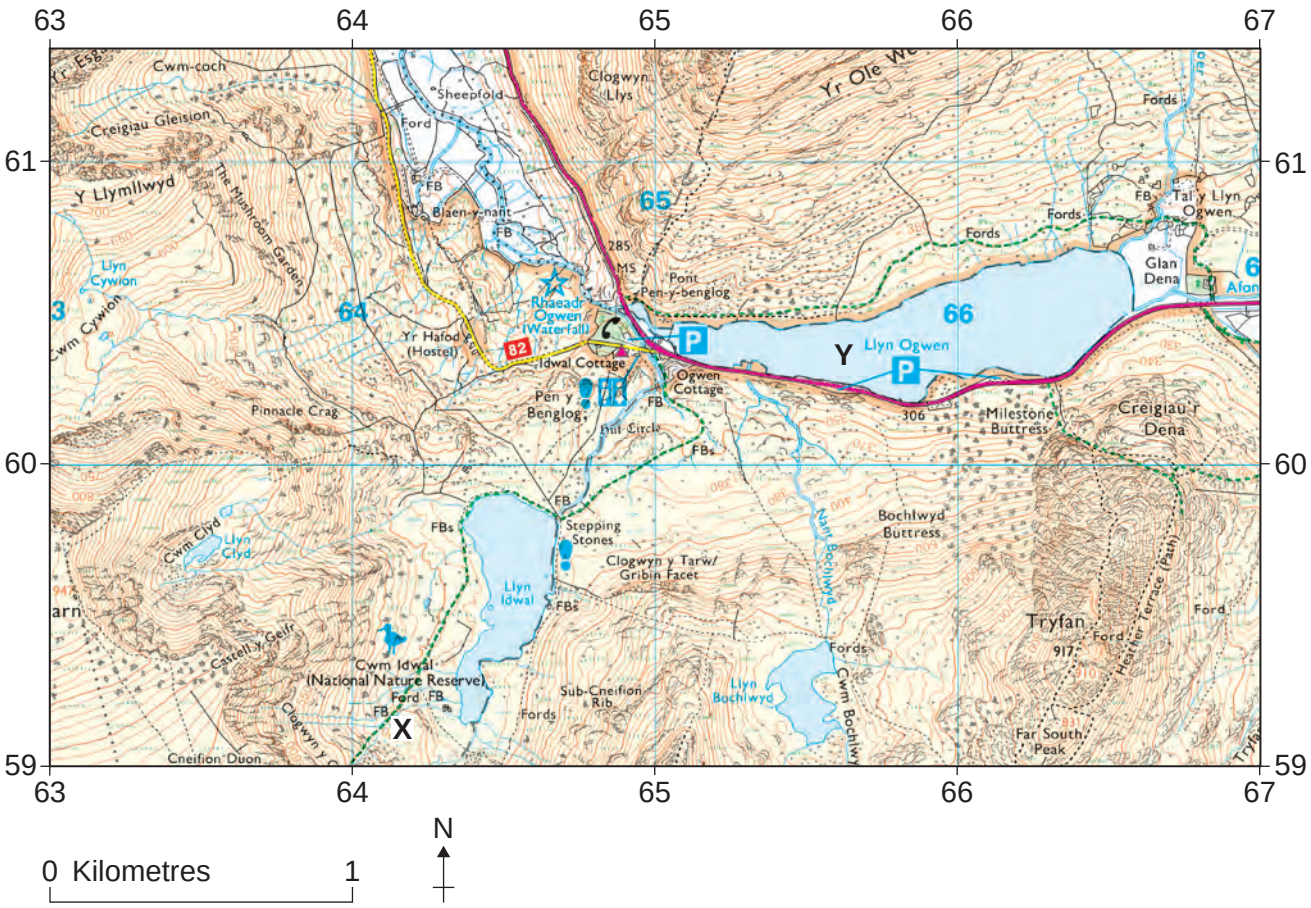
Study **Figure 17**, a 1:25 000 Ordnance Survey map showing part of Snowdonia National Park in Wales.

Figure 17



0 5 . 3 **Figure 17** shows Cwm Idwal, an example of a glacial corrie.

Give the six-figure grid reference for the part of the corrie marked **X**.

Shade **one** circle only.

[1 mark]

A 592 641 ⬭

B 602 642 ⬭

C 642 591 ⬭

D 645 597 ⬭

Do not write outside the box

Study **Figure 18**, a photograph of Llyn Ogwen, a ribbon lake in Snowdonia shown on the map extract at point **Y**.

Figure 18

0 5 . 4 Using **Figure 17** and **Figure 18**, describe **two** characteristics of a ribbon lake.

[2 marks]

1 _____

_____

2 _____

_____

Do not write outside the box

0 5 . 5 Explain how corries form as a result of glacial erosion.

[4 marks]

Extra space

Question 5 continues on the next page

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Study **Figure 19**, an extract from a newspaper article about a zip wire proposal in the Lake District in 2018.

Figure 19

There are concerns about plans to build a zip wire across the Thirlmere Valley in the Lake District. Some people think it will spoil the view. Others are concerned about the extra traffic it will bring to the narrow roads.

Participants at a zip wire attraction in North Wales

0 5 . 6 Discuss the possible conflict between development and conservation in glaciated areas.

Use **Figure 19** and your own understanding.

[6 marks]

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END OF QUESTIONS

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